Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the present application.

In the Claims:

1. (Currently amended) A method for communicating encoded data comprising:

receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols; and

~~further comprising at least one of the following~~:

demodulating the L received encoded signal values and decoding the demodulated L received encoded signal values using a rate one convolutional decoder having only one output symbol per input symbol to provide the L data symbols, wherein the L received encoded signal values are convolutional encoded using a rate one convolutional encoder having only one output symbol per input symbol and wherein the rate one convolutional decoder forms a maximum likelihood decoded result using a set of precomputed source-encoder log-likelihood values~~; and~~

~~transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values~~.

2-3. (Canceled).

4. (Currently amended) The method of Claim 1 further comprising ~~wherein~~ transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values ~~is performed~~.

5. (Original) The method of Claim 4 wherein the L received encoded signal values are orthogonal transform modulated and wherein transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values further comprises orthogonal transform demodulating the L received encoded signal values to provide the L data symbols.

6. (Original) The method of Claim 5 further comprising:

transforming L source symbols using an orthogonal transform to provide L transmit encoded signal values;

transmitting the L transmit encoded signal values over a channel subject to non-Gaussian noise; and

wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving the L transmit encoded signal values over the channel as the L received encoded signal values and wherein the L data symbols are estimates of the L source symbols.

7. (Original) The method of Claim 6 wherein the estimates of the L source symbols are compensated for time-varying fading imperfections on the channel.

8. (Original) The method of Claim 6 wherein transforming L source symbols using an orthogonal transform to provide L transmit encoded signal values further comprises transforming L source symbols as a block using an orthogonal transform to provide L transmit encoded signal values and wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving L received encoded signal values including soft information and transforming the L received encoded signal values as a block to L data symbols.

9. (Original) The method of Claim 8 wherein the L source symbols are L source bits and the L data symbols are L data bits.

10. (Original) The method of Claim 4 wherein the L received encoded signal values are one of Fourier transform or inverse Fourier transform modulated and then interleaved and wherein transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values further comprises the other of Fourier transform or inverse Fourier transform demodulating and de-interleaving the L received encoded signal values to provide the L data symbols.

11. (Original) The method of Claim 10 further comprising:

transforming L source symbols using the one of Fourier transform or inverse Fourier transform to provide L transmit encoded signal values;

interleaving the L transmit encoded signal values for transmission at non-sequential time intervals;

transmitting the L transmit encoded signal values over a channel subject to non-Gaussian noise; and

wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving the L transmit encoded signal values over the channel as the L received encoded signal values and wherein the L data symbols are estimates of the L source symbols.

12. (Original) The method of Claim 11 wherein transforming L source symbols using the one of Fourier transform or inverse Fourier transform to provide L transmit encoded signal values further comprises transforming L source symbols as a block using the one of Fourier transform or inverse Fourier transform to provide L transmit encoded signal values and wherein receiving L received encoded signal values including soft information and

transforming the L received encoded signal values to L data symbols further comprises receiving L received encoded signal values including soft information and transforming the L received encoded signal values as a block to L data symbols.

13. (Original) The method of Claim 12 wherein the L data symbols are complex symbols.

14. (Original) The method of Claim 4 wherein the L received encoded signal values are Walsh transformed and wherein transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values further comprises Walsh transforming the L received encoded signal values to provide the L data symbols.

15. (Original) The method of Claim 14 wherein the L received encoded signal values are scrambled Walsh transformed and wherein transforming the L received encoded signal values using associated spectral energy at a plurality of frequency ranges within a bandwidth of a channel over which the L received encoded signal values are received for at least one of the L received encoded signal values further comprises scrambled Walsh transforming the L received encoded signal values to provide the L data symbols.

16. (Original) The method of Claim 14 further comprising:

transforming L source symbols using a Walsh transform to provide L transmit encoded signal values;

transmitting the L transmit encoded signal values over a channel subject to non-Gaussian noise; and

wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving the L transmit encoded signal values over the channel as the L received encoded

signal values and wherein the L data symbols are estimates of the L source symbols.

17. (Original) The method of Claim 16 wherein transforming L source symbols using a Walsh transform to provide L transmit encoded signal values further comprises transforming L source symbols as a block using a Walsh transform to provide L transmit encoded signal values and wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving L received encoded signal values including soft information and transforming the L received encoded signal values as a block to L data symbols.

18. (Original) The method of Claim 17 wherein the L data symbols are complex symbols.

19. (Canceled).

20. (Currently amended) The method of Claim [[19]] 1 wherein demodulating the L received encoded signal values and convolutional decoding the demodulated L received encoded signal values ~~using a rate one convolutional decoder having only one output symbol per input symbol to provide the L data symbols, wherein the L received encoded signal values are convolutional encoded using a rate one convolutional encoder having only one output symbol per input symbol~~, further comprises convolutional decoding the demodulated L received encoded signal values as a block.

21. (Original) The method of Claim 20 wherein the block is received as a tail biting block.

22. (Original) The method of Claim 20 further comprising:

encoding L source symbols using the rate one convolutional encoder having only one output symbol per input symbol to provide L transmit encoded signal values;

transmitting the L transmit encoded signal values over a channel subject to non-Gaussian noise; and

wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises receiving the L transmit encoded signal values over the channel as the L received encoded signal values and wherein the L data symbols are estimates of the L source symbols.

23. (Original) The method of Claim 22 wherein transmitting the L transmit encoded signal values over a channel subject to non-Gaussian noise is preceded by interleaving the L transmit encoded signal values for transmission at non-sequential time intervals and wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises de-interleaving the L received encoded signal values.

24. (Original) The method of Claim 23 further comprising block coding the interleaved L transmit encoded signal values prior to transmission and wherein receiving L received encoded signal values including soft information and transforming the L received encoded signal values to L data symbols further comprises block decoding the L received encoded signal values.

25. (Original) The method of Claim 24 wherein block coding the interleaved L transmit encoded signal values prior to transmission further comprises block coding the interleaved L transmit encoded signal values prior to transmission using at least one of a Reed-Solomon code, a Fire code, or a cyclical redundancy check and wherein block decoding the L received encoded signal values further comprises block decoding the L received encoded signal values using the at least one of a Reed-Solomon code, a Fire code, or a cyclical redundancy check.

26. (Currently amended) A wireless receiver comprising:

a receiver configured to receive L received encoded signal values including soft information; and

means for demodulating the L received encoded signal values and decoding the demodulated L received encoded signal values using a rate one convolutional decoder having only one output symbol per input symbol to provide L data symbols, wherein the L received encoded signal values are convolutional encoded using a rate one convolutional encoder having only one output symbol per input symbol and wherein the rate one convolutional decoder is configured to provide a maximum likelihood result using precomputed log-likelihood values characteristic of an information source.

27-28. (Canceled).

29. (Original) The wireless receiver of Claim 26 further comprising:

a transmitter configured to transmit encoded signal values; and

a rate one encoder having only one output value per input symbol that provides encoded signal values to the transmitter.

30-40. (Canceled).

41. (Currently amended) A wireless receiver comprising:

a receiver configured to receive L received encoded signal values including soft information; and

a rate one convolutional decoder having only one output symbol per input value that demodulates the L received encoded signal values and decodes the demodulated L received encoded signal values using the soft information to provide the L data symbols, wherein the rate one convolutional decoder is configured to provide a maximum likelihood result based on pre-computed log-likelihood values characteristic of an information source encoder.

42-43. (Canceled).

44. (Original) The wireless receiver of Claim 41 wherein the rate one decoder demodulates the L received encoded signal values to output the soft information.

45. (Original) The wireless receiver of Claim 41 further comprising a received signal strength determination circuit coupled to the receiver and the rate one decoder that outputs the soft information based on a measurement of the strength of respective ones of the L received encoded signal values.

46. (Original) The wireless receiver of Claim 41 further comprising a de-interleaver that de-interleaves the L data symbols from the rate one decoder.

47-49. (Canceled).

50. (Currently amended) A rate one convolutional encoder/decoder for improving data transmission through channels having imperfections, comprising:

an encoding register that stores a last L data symbols, the encoding register being connected to a logic unit for forming only one transmit symbol for each new data symbol shifted into the encoding register;

a receiver that receives transmitted symbols and compares them with a corresponding symbol locally generated by a copy of the contents of an encoding register of a transmitter that generated the transmitted symbols and a hypothesis of a last L data symbols from the transmitter to produce ~~a mismatch metric~~ mismatch metrics, wherein the mismatch metrics are biased using precomputed log-likelihood values characteristic of an information source encoding; and

a Viterbi processor that accumulates the mismatch metrics and determines a sequence of successive symbol hypotheses that produces a lowest cumulative metric, thereby decoding the received transmitted symbols.

51. (Canceled).

52. (Original) The encoder/decoder of Claim 50 in which said data symbols and said transmitted symbols are binary bits.

53. (Original) The encoder/decoder of Claim 50 in which said data symbols belong to a first alphabet containing a first number of possible values and said transmitted symbols belong to a second alphabet containing a larger number of possible values than said first number of values and further comprising an interleaver that places successive ones of said transmitted symbols formed by said logic unit in non-successive time-positions in a transmitted stream and a de-interleaver for recollecting non-successively transmitted symbols from the transmitter at the receiver for successive processing by the Viterbi processor .

54. (Original) The encoder/decoder of Claim 50 configured to encode, transmit, receive and decode blocks of data symbols at a time.

55. (Original) The encoder/decoder of Claim 54 wherein the blocks are tailbiting blocks.

56. (Original) The encoder/decoder of Claim 54 wherein the blocks further include known tail bits and the encoder produces only one encoded bit per data bit and only one encoded bit per tail bit.

57-78. (Canceled).